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BULLETIN
OF
PURDUE UNIVERSITY

VOL. XIII

APRIL, 1913

No. 8

CIRCULAR OF INFORMATION
CONCERNING THE
SCHOOL OF PHARMACY
1913-1914

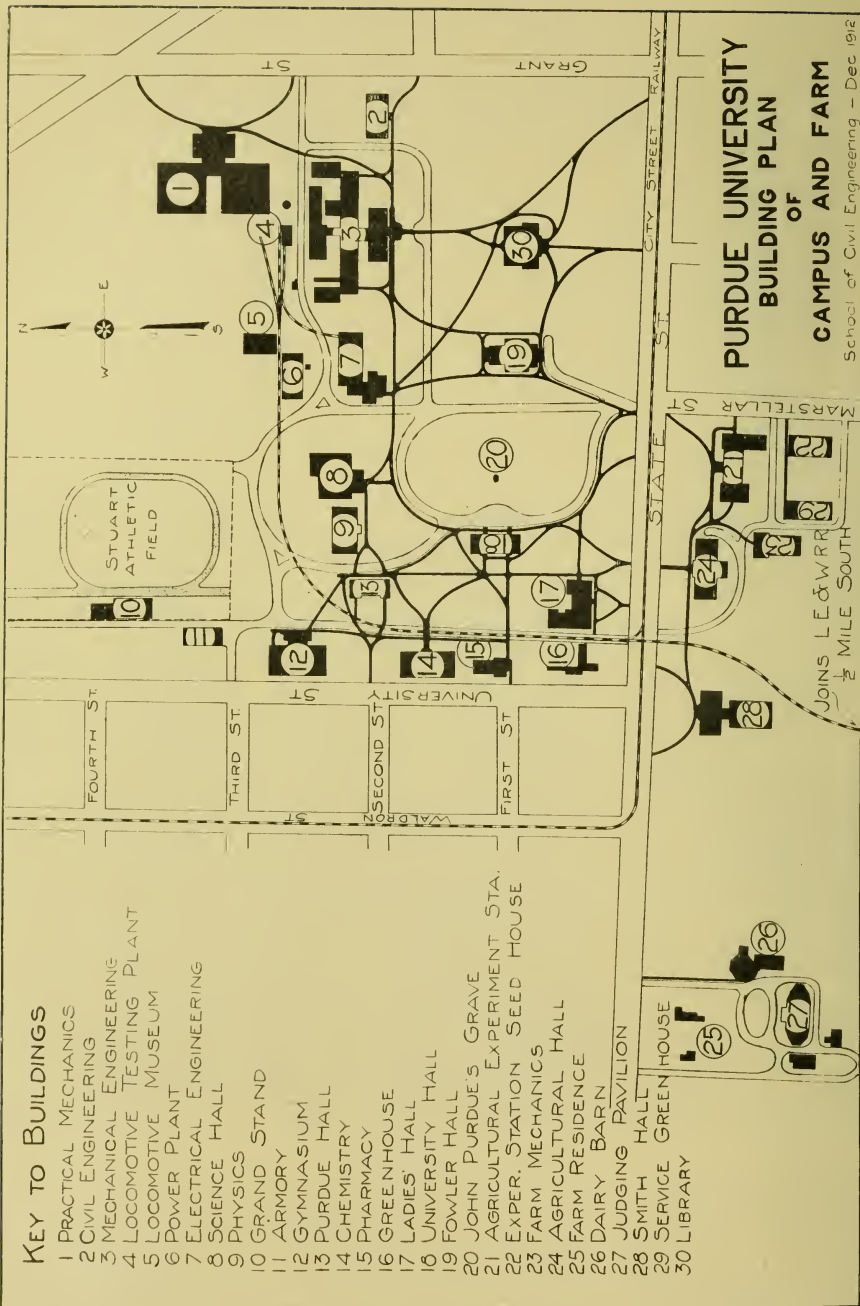


The Pharmacy Building.

PUBLISHED BY PURDUE UNIVERSITY, AT LAFAYETTE, INDIANA, IN SEPTEMBER, OCTOBER, NOVEMBER, DECEMBER, JANUARY, FEBRUARY, MARCH, APRIL AND MAY. Entered at the Post Office at LaFayette as second class matter under the Act of July 16, 1894.

KEY TO BUILDINGS

- 1 PRACTICAL MECHANICS
- 2 CIVIL ENGINEERING
- 3 MECHANICAL ENGINEERING
- 4 LOCOMOTIVE TESTING PLANT
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PURDUE UNIVERSITY BUILDING PLAN OF

CAMPUS AND FARM

School of Civil Engineering - Dec 1912

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UNIVERSITY CALENDAR.

1913.

June 4.....	8 a. m.	Spring entrance examinations begin.
September 3.....	8 a. m.	Fall entrance examinations begin,
September 5.....	8 a. m.	Condition examinations.
September 6.....	8 a. m.	to September 10. Registration.
September 10.....	11 a. m.	First Semester begins.
November 27.....		Thanksgiving Day. Holiday.
December 20.....	12 m.	Christmas recess begins.

1914.

January 6.....	8 a. m.	Christmas recess ends.
January 26.....	8 a. m.	Registration for Second Semester begins.
January 31.....	12 m.	First Semester ends.
February 2.....	8 a. m.	Second Semester begins.
May 30.....		Memorial Day.
June 3.....	8 a. m.	Spring entrance examinations begin.
June 10.....		Commencement.

September 2.....	8 a. m.	Fall entrance examinations begin.
September 9.....	11 a. m.	First Semester begins.

BOARD OF TRUSTEES.

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Librarian of the University.

EDWARD HATTON DAVIS, S. B.,
Registrar of the University.

EDWARD AUGUSTUS ELLSWORTH.
Bursar of the University.

*Deceased.

CORPS OF INSTRUCTORS, 1912-13.

CHARLES BERNARD JORDAN, Ph. C., M. S., Professor of Pharmaceutical Chemistry and Director of the School of Pharmacy.

ALBERT HASKIN DEWEY, Ph. G., M. S., Professor of Pharmacy.

WILLIAM FRANCIS GIDLEY, Ph. C., B. S., Assistant Professor of Materia Medica.

PERCY NORTON EVANS, B. S., Ph. D., Professor of Chemistry: Director of the Chemical Laboratory.

JAMES HARVEY RANSOM, A. M., Ph. D., Professor of General Chemistry.

HARRISON JACKSON PRICE, A. B., Captain 24th Infantry, U. S. A., Professor of Military Science and Tactics: Commandant of Cadets.

EDWARD G. MAHIN, M. S., Ph. D., Associate Professor of Chemistry.

ARTHUR RENWICK MIDDLETON, A. B., Ph. D., Assistant Professor of Chemistry.

OLIVER PERKINS TERRY, M. S., M. D., Associate Professor of Physiology.

HOWARD EDWIN ENDERS, M. S., Ph. D., Associate Professor of Zoology.

CURTIS MORRISON HILLIARD, A. B., Assistant Professor of Sanitary Science.

WILBUR GLYNDON CRANE, B. S., Assistant in Chemistry.

RAYMOND LAY FRISBEE, A. B., Assistant in Chemistry.

OLIVER MORTON HARRISON, B. S., Assistant in Chemistry.

RALPH EMORY NELSON, B. S., Assistant in Chemistry.

GLOYD W. WRAY, A. B., Assistant in Chemistry.

PHILIP ARMAND TETRAULT, A. B., Assistant in Biology.

EARL PRICE, A. B., Assistant in Biology.

THE ORIGIN AND PURPOSE OF PURDUE UNIVERSITY.

Purdue University was organized under an act of Congress, passed July 2, 1862. This act appropriated public lands to the several States for the purpose of aiding in the maintenance of colleges "where the leading objects shall be, without excluding other scientific or classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts." The act provides that States availing themselves of the benefits offered shall establish and maintain not less than one college of the nature above indicated. It also specifies certain conditions in accordance with which this shall be done. Among these conditions are the following:

FIRST—"No portion of said fund, nor the interest thereon shall be applied directly or indirectly, under any pretense whatever, to the purchase, erection, preservation or repair of any building or buildings.

SECOND—"Any State which may take and claim the benefit of the provisions of this act shall provide within five years, at least, not less than one college, as described in the fourth section of this act, or the grant to such State shall cease; and said State shall be bound to pay the United States the amount received of any lands previously sold, and that the title to purchase under the State shall be valid."

The State of Indiana, by an act approved March 6, 1865, obligated itself as follows:

"The State of Indiana accepts and claims the benefits of the provisions of the acts of Congress, approved July 2, 1862, and April 4, 1864, and assents to all the conditions and provisions in said acts contained."

The State accepted from John Purdue and other citizens of Tippecanoe County donations to the amount of \$230,000, and pledged its faith to the adequate and perpetual maintenance of the institution. Purdue University is also a beneficiary of four acts of Congress, known respectively as the Hatch, the Morrill, the Adams and the Nelson acts. The amount received annually from the United States as proceeds of the original grant and of the four subsequent acts is \$69,000. Private donations have been received from Amos Heavilon, from Eliza Fowler, from James Fowler and from William C. Smith, for the erection and equipment of buildings.

By an act of the Legislature of 1869 the institution thus provided for was located in Tippecanoe County, and the faith of the State was pledged that the location so made shall be permanent.

The name of Purdue University was also established by legislative act of 1869, as follows: "In consideration of the said donation by John Purdue, amounting to one hundred and fifty thousand dollars, and of the further donation of one hundred acres of land appurtenant to the institution, and on condition that the same be made effectual, the said institution, from and after the date of its location as aforesaid, shall have the name and style of 'Purdue University'; and the faith of the State is hereby pledged that such name and style shall be the permanent designation of said institution, without addition thereto or modification thereof."

It thus appears that the University, while bearing the name of John Purdue, is an institution exclusively under State control, and that government aid was originally extended, not only to establish, but to aid in maintaining a State institution of a specific kind.

The University offers instruction

1. In Pharmacy—
Pharmacy; chemistry, materia medica; prescription practice.
2. In Applied Science—
Biology; chemistry; physics; art; sanitary science; forestry; home economics.
3. In Mechanical Engineering—
Shop practice; machine design; transmission of power; steam engineering; railway mechanical engineering; gas engineering; heating and ventilation.
4. In Civil Engineering—
Shop practice; railway engineering; structural engineering; hydraulic engineering; sanitary engineering.
5. In Electrical Engineering—
Shop practice; machine design; power generation and transmission; electric railway engineering; telephone engineering; illuminating engineering.
6. In Chemical Engineering—
Shop practice; chemistry; physics; applied electricity; mathematics; mechanics; steam engineering; materials testing.
7. In Agriculture—
Agronomy; horticulture; entomology; animal and dairy husbandry; veterinary science; agricultural chemistry.

Students enrolled under the four-year plan of study receive additional instruction in Biology, Economics, English, French, German, Mathematics, Military Science and Physics under the direction of the instructors in these departments.

THE SCHOOL OF PHARMACY.

Charles Bernard Jordan, Ph. C., M. S., Director.

The School of Pharmacy of Purdue University was established in 1884, and has since that time constituted an important department of the institution.

Over 750 students have graduated from the School, of whom an unusually large proportion are successfully pursuing the profession of pharmacist or closely allied vocations.

The School has kept pace with the other departments of the University and with pharmaceutical development in the extension and perfecting of its instruction and facilities and now offers superior opportunities to those who wish to train themselves thoroughly for the important duties of the professional or manufacturing pharmacist, the pharmaceutical chemist, or the retail druggist.

By recent action of the University authorities, the entrance requirements and class instruction in this school have been placed on the same footing as those required in the other departments of the University. Prospective students are reminded that this department offers the same opportunities for study and attainment as any other in the institution, and that its members participate in all the privileges and responsibilities of the entire University.

Particular attention is called to the following matters discussed in these pages:

1. The teaching staff—including many of the leading instructors of the University.
2. The extensive laboratories and complete equipment for instruction.
3. The complete plan of study covering all phases of pharmaceutical practice and theory.
4. The entrance requirements, as now fixed, involving graduation from a Commissioned High School or its equivalent.

The requirements of the Law of Indiana regulating the professional training and licensing of druggists are more than satisfied by the training furnished in this school.

BUILDINGS

The University is equipped with over a score of buildings, of which the more important are included in the following list:

ELIZA FOWLER HALL, the gift of Mrs. Eliza Fowler of LaFayette, is a decorative and dignified stone building surmounted by a red tiled roof, situated in a grove near the center of the campus. It contains a large auditorium, in which are held all public exercises of the University, including frequent lectures and concerts. A large three-manual organ, the gift of Mr. James M. Fowler of LaFayette, adds to the value of the building as a refining and cultivating agency. In the building are also the rooms of the trustees, the president, and the faculty.

THE PHARMACY BUILDING is of brick, two stories in height. It contains a lecture room, balance room, storerooms, offices, preparation rooms, pharmacognosy and prescription room and general laboratories. It is here that instructors and students in Pharmacy make their headquarters and do the strictly technical work relating to the departenmt.



Chemistry Building.

THE CHEMISTRY BUILDING, completed in 1907, is a stone and brick rectangle, 156 by 70 feet, with three working floors and an attic, well lighted and ventilaed. It contains five general students' laboratories, seven special laboratories, and five private laboratories and offices; a lecture room seating 440, and three class rooms; also, a department library, two balance rooms, and supply rooms.

UNIVERSITY HALL is a large brick structure of three stories and a deep basement. It contains a large assembly room, the halls of the literary societies, recitation rooms, and the offices of the registrar and bursar.

PURDUE HALL is a large four-story brick building, containing recitation rooms and offices for the Mathematics, German and other departments.



Physies Building and Science Hall.

THE PHYSICS BUILDING is a stone and brick building of two stories over a high basement. In the basement are three laboratories fitted with stone piers, seven dark rooms, a storage battery, and a work shop. The first floor is occupied by two general and several special laboratories, an apparatus room, and offices. On the upper floor are a lecture room with a capacity of three hundred students, a preparation room, four recitation rooms, and offices. The wiring and switchboard afford excellent facilities for the manipulation of electric currents of all kinds.

SCIENCE HALL is a two-story building devoted to the work of the Department of Biology. The building provides general, special, and research laboratories, museums, and offices for instructors.

THE GENERAL LIBRARY is housed in a white stone building erected in 1912 at a cost of \$100,000. The building is 120 feet by 90 feet, and contains on the ground floor a study and a lecture room; on the second floor a reading room, 116 feet by 40 feet, seating 180 readers; a newspaper room; a conference room, and library work rooms and offices. On the third floor are seven seminar rooms. The book stack is capable of shelving 100,000 volumes on five levels.



Memorial Gymnasium.

THE MEMORIAL GYMNASIUM, erected in 1908, in memory of almost a score of students who lost their lives by a railroad accident in October, 1903, is a large structure of dark colonial brick with Bedford stone trimmings and a tile roof. It has a ground area of 165x85 feet, with a front projecting portion 70x35 feet. It contains a gymnasium hall with an unobstructed floor area of 160x80 feet, and an overhead running track of nearly 500 feet. The basement, 14 feet in height, provides for a 60x30-foot swimming pool and bath, dressing, and locker rooms, with provision for 2,000 lockers. The building contains, also, trophy, lounging, and committee rooms, and offices for athletic organizations.

CENTRAL POWER, HEATING AND LIGHTING PLANT.—This building contains the extensive apparatus for generating light, heat, and power for the University buildings and laboratories. The installation represents the most recent approved engineering practice and, aside from its direct utility, is a valuable feature of the equipment for instructional purposes.

MATERIAL EQUIPMENT

PHARMACY EQUIPMENT.

THE GENERAL LABORATORIES include three rooms adapted to general laboratory work in Pharmacy, Materia Medica, and Pharmaceutical Chemistry.

MATERIA MEDICA LABORATORY.—This contains cabinets of crude drugs, chemicals, and preparations for inspection and identification by students. Besides this working cabinet, the School possesses an accurate reference cabinet containing specimens of crude drugs, roots, barks, leaves, seeds, etc., as they occur in the drug market.

THE PHARMACY AND PHARMACEUTICAL CHEMISTRY LABORATORIES are well equipped for instruction in the subjects pertaining to them.

BALANCE ROOM.—In the weighing room are twelve analytical balances; nine Sartorius analytical balances, sensitive to .0001 gramme; two Becker analytical balances; and one Queen analytical balance.

The prescription room is well supplied with sensitive prescription balances, and the general laboratories with balances for less delicate weighing.

Storerooms are supplied with all apparatus, drugs, and chemicals necessary for the preparing and compounding of medicines; for qualitative and quantitative analysis, inorganic and organic; for the preparation of inorganic and organic compounds; and for the detection and estimation of adulteration in drugs, chemicals, and foods.

The students in the School of Pharmacy also enjoy the advantages of well equipped laboratories for instruction in Biology, Microscopy, and Chemistry.

BIOLOGY EQUIPMENT.

The equipment is of modern type and is ample for the lines of work undertaken. In the laboratories for advanced and special work the apparatus is duplicated in order to permit of individual work or of work in small sections.

BACTERIOLOGY AND HYGIENE LABORATORY.—A complete bacteriological laboratory, equipped with apparatus of the most modern type, provides for teaching and research work in medical and sanitary bacteriology. Special apparatus is provided for the study of problems connected with public hygiene and preventive medicine.

The laboratory is supplied with facilities for pursuing such special medical phases as serum diagnosis, study of opsonins and vaccine therapy; and experimentation on animals.

ANATOMY LABORATORY.—The anatomical laboratory offers facilities for a thorough course in human osteology and also for the laboratory study of general mammalian anatomy. Dissection upon the cadaver is provided for students taking the course in medicine.

PHYSIOLOGY LABORATORY.—The physiological laboratory is equipped with the usual apparatus for physiological experimentation, including kymographs and myrographs for recording results; electrical apparatus for stimulating living tissues; time recorders, and instruments of precision for studies in animal electricity, the central nervous system, the special senses, respiration, the circulation of the blood, etc. The equipment also includes a full set of the usual clinical instruments.

CHEMISTRY EQUIPMENT.

The laboratories provide individual accommodation and equipment for the instruction of 864 students in general chemistry, 240 in qualitative analysis, 144 in quantitative analysis, 64 in organic chemistry, and 20 in physical chemistry.

The building is provided with automatic steam heat regulation, ventilating flues from all rooms to a central ventilator in the roof, a still and storage tank in the attic distributing distilled water to all floors, a blower supplying air blast to several of the laboratories, and a hydrogen sulphide generator supplying forty openings in the qualitative analysis laboratory.

THE WATER ANALYSIS LABORATORY is isolated from other laboratories to insure pure air, and provided with the usual equipment for sanitary chemical water analysis.

OTHER SPECIAL EQUIPMENT includes projection lanterns, combustion furnaces, combustion calorimeter, polarizing microscope, refractometers, spectrometer, molecular weight and other physical chemical apparatus, and special apparatus for analysis of oils and asphalt, and for the Kjeldahl nitrogen determination.

PHYSICS EQUIPMENT.

The main lecture room has a seating capacity of three hundred. The lecture table is equipped with a marble switchboard provided with two ammeters and rheostats with twenty-four terminals of

various experimental electrical circuits, together with switches for operating the lights, the ventilating motor, and the motor for raising and lowering the shutters for darkening the room. The adjoining preparation room is supplied with a large equipment of modern demonstration apparatus.

THE UNIVERSITY LIBRARY.

A knowledge of books and their use is becoming as important to the scientist and the engineer as the knowledge of the tools and instruments of his profession. The library is a necessary adjunct to almost every department of study in the curriculum and this has been recognized in the facilities provided for such work at this institution. The University Library now consists of the General Library, one Department Library and several deposit collections. It numbers about 30,000 volumes and pamphlets and its collections have been chosen with special reference to the lines of work offered by the University. It is well equipped with recent books and periodical sets suited for class work and for research in Agriculture, Engineering and Pharmacy, and in the fundamental sciences, Biology, in History, Economics, Literature and Art. Good reading is also provided in Chemistry, Physics and Mathematics, with good working collections in Biography, Travel and Fiction. The Library receives about 250 periodical publications by purchase and 150 by gift, while the serial publications of Societies, Institutions, State and Federal Governments, brings the number up to more than 1,000. The Library is a government depository.

The only Department Library is the Library of Chemistry in the Chemistry Building, which contains about 700 books and periodicals. Both the current numbers and the bound sets of the chemical journals will be found in the Department Library.

MILITARY EQUIPMENT.

The equipment of the Military Department consists of 800 U. S. magazine rifles, cal. 30, model 1898, with 1902 sights, and an equal number of fair leather equipments, eighteen 22. cal. gallery rifles, model 1903, one national color and one corps color. During good weather the drills are held out of doors, and when the weather is inclement they are held in the Armory, which accommodates one battalion at a time.

FACILITIES FOR RECREATION

PUBLIC LECTURES.—A convocation of all students and instructors is held at eleven o'clock Thursday morning in Fowler Hall. At these meetings there is often music and an address by some guest of the University or a member of the faculty, so that during the year a large number of instructive and helpful talks are given to the students.

A committee of the Faculty arranges annually a course of lectures and entertainments of the highest class at a mere nominal cost. These courses have included a sufficient variety to appeal to different tastes, but the aim has been steadily preserved to allow nothing but the best to appear on the Purdue platform. In this way the University is able to offer to its students and their friends the most efficient means of culture in the form of lectures on travel, literature, civics, readings of masterpieces of dramatic art, and musical entertainments of high order, all within easy reach of any student. The entire number of season tickets are quickly taken up as soon as they are offered for sale.

STUDENT ACTIVITIES.—Athletics.—The purpose of athletics is to encourage all students to take outdoor exercise and physical recreation. Without losing sight of the principle that in any rational and well-regulated mode of living, play is to be subordinate to work, although contributing to its efficiency, the University encourages all students to take part in athletic games and sports so far as they can make them an object of recreation, exercise, and healthy interest without permitting them to absorb the interest, time, and strength that ought to be given to real work; and imposes only such regulations in athletic matters as experience has shown to be necessary to prevent abuses. With this in view it has provided an Athletic Director, who supervises all athletic games, and Stuart Field, an athletic arena which has been improved and equipped for outdoor sports. A playground of about fifteen acres adjacent to Stuart Field has been set aside to provide practice ground for class teams and individuals so as to permit all students to take part in these sports so far as they desire to do so. The Memorial Gymnasium provides a place for recreation and physical exercise at those seasons of the year when outdoor sports are im-

possible and also give impetus to participation in these games in their season.

The games which claim the principal interest of students are football, baseball, basket ball, track and field events, although tennis and other minor sports are attractive to many students.



A Football Game on Stuart Field.

In the major sports teams representing the classes and various student organizations play a series of games the quality of which compares favorably with that of many intercollegiate contests and which call out to the field either as participants or spectators a very large number of students. Athletic affairs are in the hands of the Athletic Association, to membership in which students, instructors, and officers of the University are eligible. Membership carries with it a ticket of admission to all games, and the association enjoys the most generous and enthusiastic support of all the student organizations. The University is a member of the Intercollegiate Conference and all intercollegiate games are played under the rules of that Conference. The eligibility rules concerning playing in an intercollegiate game are enforced by the faculty committee on athletics.

Publications.—The student publications of the University include the *Purdue Daily Exponent*, which is a valuable news sheet enabling the student to learn what is going on in all departments of the University; the *Purdue Agriculturalist*, a monthly magazine

published by the Agricultural Society and devoted to the interest of farming and agricultural education; the *Engineering Review*, published annually by the Engineering Societies, and the *Debris*, the annual of the senior class.

Literary Societies.—The students have four literary societies, the Carlyle, the Emersonian, and the Irving, for men, and the Philaethean, for women. These societies have commodious halls, well furnished and set aside for their use. They meet weekly and present programs consisting usually of essays, declamations, debates, and orations, give excellent practice in writing and speaking, and offer efficient means of improvement. There are also three debating societies, the Purdue, the Jeffersonian, and the Forum. While these have been organized more recently than the literary societies, they are very vigorous and are of very great benefit to their members.

Scientific Societies.—Connected with the various departments of technical instruction are the scientific societies; the Mechanical Engineering Society, the Civil Engineering Society, the Purdue Branch of the American Institute of Electrical Engineers, the Chemical Society, the Premedical Society, the Pharmaceutical Society and the Agricultural Society. These societies have regular meetings and their members derive much good from the discussion of scientific and technical questions intended to put them in touch with the practical side of their technical studies.

Young Men's Christian Association.—This is a student organization directed by a State and National organization, active and helpful in the daily life of the student. It welcomes new students and helps to find rooms and boarding places for them, and maintains an employment bureau for the benefit of students who have to earn money to help pay their college expenses.

Other Societies.—There are several other student organizations having various objects, musical, social, and otherwise, among which may be mentioned the Purdue Band, which is subject to the orders of the Military department, the Purdue Orchestra, the Mandolin Club, the Glee Club, the Girls' Glee Club, and the Harlequin Club, which annually presents a dramatic entertainment; various State Clubs, the membership in each of which consists of the students in the University from a particular State, and the Cosmopolitan Club, whose members are the students from foreign countries.

ADMISSION TO THE UNIVERSITY

Those who have access to a high school are expected to complete four full years before applying for admission. The power and training given by a systematic plan of study four years in length, such as is furnished by the Commissioned High Schools of Indiana or other good schools, are an asset of no small value to a student entering upon a college course, the difficulties of which tax the powers of the best prepared. Experience shows that one of the chief causes of failure in college classes is unsatisfactory preparation. Many applicants who have had good school opportunities are found to be deficient in their knowledge of preparatory mathematics, and particularly in their ability to use the English language. A thorough working knowledge of the preparatory subjects is absolutely necessary in order to begin and carry on the prescribed work of the University, and it is manifestly unfair to the applicant himself to admit him if he can not demonstrate that his preparation is sufficient to do this work successfully. On this account, applicants who do not satisfy all these stated entrance requirements will be received only in exceptional cases.

TIME OF ENTRANCE.

In 1913 the registration days will be Saturday, Monday, Tuesday, and Wednesday, September 6, 8, 9 and 10. An extra fee of two dollars will be collected of students who register after September 10, and of one dollar from students of the first semester who do not complete their second semester registration in advance of the first day of the second semester.

APPLICATION FOR ADMISSION.

All persons who desire to enter any department of the University should make application to the Registrar as early as possible before the opening of the first semester (September 10, 1913). This application should be made by those who desire to be admitted by certificate as soon as possible after their graduation from the High School. To all applicants a blank will be furnished, which they

are expected to fill out and file with the Registrar in advance of entrance.

Early attention to this matter will save the applicant much delay and embarrassment at the opening of the semester.

ADMISSION BY CERTIFICATE.

Admission by certificate is granted only to graduates of Commissioned High Schools of Indiana and of schools of like standing in other States. Such graduates will be admitted without examination at the opening of the first semester on credentials, certifying to their age, character, scholarship, and graduation, provided the subjects certified cover the entrance requirements. This certificate must give in detail, concerning each subject which the applicant has studied in the school, the length of time in weeks, the number of recitations per week, and the grade or mark indicating his proficiency. A blank for this certificate may be had upon application to the Registrar. A school diploma is not acceptable in place of it.

A Commissioned High School is one which under the rules of the Indiana State Board of Education attains certain prescribed standards of equipment, teaching force, and efficiency, and administers in a satisfactory manner a four-year plan of study, in advance of eighth grade or grammar school studies, and including four years of English, three years of mathematics, three years of history, three years of foreign language, and two years of science, and which requires for graduation sixteen units of work.

School certificates will not be accepted in place of examination in any subject from an applicant who is not a graduate of an accredited school.

ADMISSION BY EXAMINATION.

Applicants who are not graduates of accredited schools are required to take the entrance examinations in the prescribed subjects and in a sufficient number of the elective subjects to make a total of fifteen units. Application for those examinations must be made to the Registrar, who will furnish a blank for this purpose.

Candidates will not be admitted to the examinations unless they can present certificates indicating a satisfactory amount of high school work already completed.

All applicants, in order to be admitted, must be at least sixteen years of age and must furnish certificates of good character.

The scholarship requirement for admission to all schools is thorough preparation in fifteen units of High School work. A unit is the amount of work represented by five recitations a week for a school year of not less than eight months; i. e., not less than 160 recitations on prepared work or equivalent laboratory or other practice.

PREScribed.

Of these fifteen units, the following are prescribed for all of the students:

English	3 units
Foreign Language	2 units
Algebra	1½ units
Plane Geometry	1 unit
Science	1 unit
History	1 unit

For the Engineering Schools there is required in addition:

Solid Geometry	½ unit
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ELECTIVE.

To make up the total of fifteen units the applicant may offer any of the following:

English	½ or 1 unit
Foreign Language	1 to 4 units
Mathematics	½ or 1 unit
Science	½ to 3 units
History	½ to 3 units
Shop Work	½ to 2 units
Drawing	½ or 1 unit

Agriculture, Domestic Science, Manual Training.

The subjects of Manual Training, Domestic Science and Agriculture may be offered for entrance in the elective group to the extent of one-half to one unit provided they have been administered for the same time and with the same degree of thoroughness as other accepted subjects.

REGISTRATION.

As a condition of admission to the University, or any department therein, or of re-entrance, students are required to register and to subscribe to all regulations of the institution relating to the obligations and duties of students, and to promise a faithful compliance therewith during their connection with the University, that is, until dismissed or graduated. A copy of the rules and regulations will be forwarded to any address upon application.

EXPENSES

Purdue University is a State institution, therefore the Trustees grant free tuition to all students entering from the State of Indiana. All others are required to pay an annual tuition fee of twenty-five dollars.

The University Fees required of all students with the above exception will be as follows:

Entrance fee, payable annually on matriculation	\$ 5 00
Tuition fee, per annum.....	25 00
Incidental fee, per annum.....	10 00
Laboratory and library fees, per annum.....	20 00
Hospital fee, per annum.....	1 00
Diploma fee on graduation.....	5 00

The entrance fee, the hospital fee, and one-half of all other fees are payable at the beginning of the first semester; the balance at the beginning of the second semester.

Checks and drafts should be made payable to Purdue University.

After October 1st no fees will be returned to students who have withdrawn, except in cases of disabling sickness.

Laboratory fees cover expenses for drawing paper, all shop material, chemicals, and all other laboratory materials used by the students, and the use of microscopes and other apparatus. Books and drawing instruments are purchased by the students.

A deposit of \$15.00 is required at the time of registration of all freshmen and others lacking credit in military instruction to cover the cost of the uniform or to defray the expense of extra instruction in other than the military department should the student subsequently be assigned thereto.

Those taking a course in Chemistry are required to deposit with the Secretary five dollars a semester, in advance, to cover breakage and use of apparatus. The money that is not used will be refunded at the close of the semester. A similar deposit of ten dollars is required of those taking Pharmacy.

Other Expenses (estimated):

Table board, per week.....	\$3 00 to \$3 50
Room rent, heat and light, two in a room, each per month..	4 50 to 6 00
Washing, per week.....	25
Instruments and supplies (per annum).....	15 00 to 20 00

Books are often obtainable at second hand for reduced prices.

County Appointments.—The law of Indiana provides for the appointment of not to exceed two (2) students from each county in the State, who upon entering Purdue University, shall be exempt from the payment of certain entrance and incidental fees, amounting to \$15.00 per annum, but not from library and laboratory fees. Students seeking such appointments will carefully note the following:

1. These appointments are made annually by the Commissioners of the various counties, to whom application therefor should be made. The appointee must reside in the county from which the appointment is made. The appointment expires June 30th, but may be renewed.

2. The certificate of appointment should be filed with the University as soon as received by the appointee, as the appointment cannot be recognized until this is done. It becomes effective at the beginning of the semester next after it is filed.

3. This appointment does not apply to, nor relieve the applicant from, the requirements as to scholarship demanded for entrance to the University classes.

Prospective students, who cannot secure such appointments because the quota from the county is already filled, should not defer entering the University on that account, since the saving in money is not sufficient to offset the loss of time caused by waiting one or more years.

Health.—A Medical and Infirmary Service provides opportunity for each student to consult with a competent medical advisor and, when necessary, to enter hospital at LaFayette for a limited time, free of charge. In accidents or emergencies occurring on the campus in connection with University duties, first aid is administered by the University physician without charge. For this service, each resident student is required to pay annually a medical and infirmary fee of \$1.00.

Medical attendance at the homes of students or at the hospitals; drugs and medicines; treatment of injuries received in physical exercises and contests; and treatment of certain specific and chronic diseases are not included in this service.

Self-Support.—Students who hope to contribute to the payment of their expenses by outside work during term time should not expect to earn much in this way, since the regular class work will require most of their time and effort. No one should come to the University depending solely upon local employment for support unless some definite arrangement has been previously made.

A number of students each year are able to earn money enough to pay a part or all of their expenses, but they depend for the most part on employment during the summer vacation. The best opportunities open to students about the University and city are likely to be taken by those who have been in the University during a previous year, so that students will be able to find many more opportunities to earn money after they have been in residence for a year than when they first come. Usually these places can not be found for a student in advance of his coming, and it can not be emphasized too strongly that much depends upon his willingness and his determination to succeed, as well as upon his skill, his versatility, and his initiative. Some students find more work than they can do, others find scarcely any.

The policy of the University is to reduce all necessary expenses to the minimum, and in this way to aid those whose means are limited. In this respect the conditions are favorable, but persons are advised not to enter the University without definite resources sufficient to meet their expenses for a time at least.



The Campus Gates.

PLANS OF STUDY

The School of Pharmacy offers two Plans of Study offering superior opportunities to those who wish to train themselves thoroughly for the important duties of the professional or manufacturing pharmacist, the pharmaceutical chemist, or the retail druggist.

TWO YEAR PLAN OF STUDY.

Leading to the Degree of Pharmaceutical Chemist.

This is intended to fit students for the practice of Pharmacy, including the preparation of medicine, the compounding of prescriptions, and the chemical and microscopical examination of medicinal materials. The plan of study includes the professional courses set forth in the National Pharmaceutical Syllabus, and in addition, a thorough grounding in the sciences—biology and chemistry—upon which Pharmacy is so largely based. The number of hours more than doubles the number required in the Syllabus.

(The figures preceding the course indicate the number of hours per week of recitation (**light face**) and of laboratory (**bold face**) assigned to it. The figures in parenthesis following the course indicate the page on which it is described.)

FIRST YEAR.

First Semester.

- 2-3 General Biology 1 (32)
- 2-4 General Chemistry 1 (30)
- 2-6 General Pharmacy 11 (25)
- 2-1 Vegetable Materia Medica 5 (27)
- 2-0 Physiology and Hygiene 44 (33)
- 1-5 Preventive Medicine 8 (32)
- 1-0 Pharm. Jurisprudence 19 (26)

Second Semester.

- 2-3 General Biology 2 (32)
- 2-4 General Chemistry 2 (30)
- 2-6 General Pharmacy 12 (25)
- 2-1 Vegetable Materia Medica 6 (27)
- 2-0 Physiology and Hygiene 45 (33)
- 3-6 Qualitative Analysis 8 (29)

SECOND YEAR.

First Semester.

- 2-1 Inorganic Materia Medica 7 (27)
- 2-6 Quantitative Analysis 9 (29)
- 1-3 Organic Qualitative Analysis 11 (29)
- 4-0 Organic Chemistry 15 (30)
- 2-3 Pharmacy and Prescription Practice 17 (26)
- 1-3 Chemical Preparations 21 (27)
- 2-0 Commercial Pharmacy 25 (27)

Second Semester.

- 2-1 Organic Materia Medica 8 (28)
- 1-6 Microscopy of Drugs 10 (28)
- 1-3 Drug Assay 12 (29)
- 4-0 Pharmacology 48 (33)
- 2-3 Pharmacy and Prescription Practice 18 (26)
- 1-3 Chemical Preparations 22 (27)
- 2-0 U. S. Pharmacopoeia and National Formulary 26 (27)

FOUR YEAR PLAN OF STUDY.

Leading to Degree of Bachelor of Science in Pharmacy.

This is intended to fit students for responsible laboratory positions with the State or Government, or to prepare them as pharmaceutical chemists for manufacturing establishments, wholesale houses, or importers. Recent pure food and drug legislation has created a number of positions for pharmaceutical chemists. The best laboratory positions are, however, for men whose education has been broad and general, supplemented with the necessary professional training in pharmacy.

The figures in parenthesis preceding a course indicate the number of points assigned to it. One hour a week in a course which does not require of the student outside time for preparation counts one point; one hour a week in a course which requires outside time counts two and one-half points.

FRESHMAN YEAR.

First Semester.

(8) Biology 1.....	p. 32
(9) Chemistry 1.....	p. 30
(7½) English 3.....	p. 35
(6) Materia Medica 5.....	p. 27
(7½) Mathematics 11.....	p. 37
(3) Military Drill 1.....	p. 37
(11) Pharmacy 11.....	p. 25

Second Semester.

(8) Biology 2.....	p. 32
(9) Chemistry 2.....	p. 30
(7½) English 4.....	p. 35
(6) Materia Medica 6.....	p. 27
(7½) Mathematics 12.....	p. 37
(3) Military Drill 2.....	p. 37
(11) Pharmacy 12.....	p. 25

SOPHOMORE YEAR.

First Semester.

(11) Chemistry 3.....	p. 31
(11) Chemistry 7.....	p. 31
(7½) English 5.....	p. 35
(7½) German 7 or 7a.....	p. 36
(3) Military Drill 3.....	p. 37
(5½) Pharmacy 21.....	p. 27

Second Semester.

(11) Chemistry 4.....	p. 31
(11) Chemistry 8.....	p. 31
(7½) English 6.....	p. 35
(7½) German 8 or 8a.....	p. 36
(3) Military Drill 4.....	p. 37
(5½) Pharmacy 22.....	p. 27

JUNIOR YEAR.

First Semester.

(7½) Biology 39a.....	p. 33
(11) Chemistry 5.....	p. 31
(7½) German 15 or 15a.....	p. 26
(7½) History 1.....	p. 35
(5½) Pharm. Chemistry 11.....	p. 29

Second Semester.

(7½) Biology 39b.....	p. 33
(11) Chemistry 6.....	p. 31
(7½) German 16 or 16a.....	p. 36
(8½) Materia Medica 10.....	p. 28
(5½) Pharm. Chemistry 12.....	p. 29

Electives.

Electives must count at least 11 points.

(11) Biology 18.....	p. 32	(11) Biology 19.....	p. 32
(7½) Education 1.....	p. 28	(7½) Education 2.....	p. 28
(7½) French 1.....	p. 35	(7½) French 2.....	p. 35
(7½) Mathematics 13.....	p. 37	(7½) Mathematics 14.....	p. 37
(7½)*Physics 1a.....	p. 34	(7½) Physics 2a.....	p. 34

SENIOR YEAR.

First Semester.

(7½) Economics 2.....	p. 35
(6) Materia Medica 7.....	p. 27
(8½) Pharm. Chemistry 13.....	p. 30
(8) Pharmacy 17.....	p. 26
(2½) Pharmacy 19.....	p. 26
(5) Pharmacy 25.....	p. 27

Second Semester.

(10) Biology 48.....	p. 33
(6) Materia Medica 8.....	p. 28
(8½) Pharm. Chemistry 14.....	p. 30
(8) Pharmacy 18.....	p. 26
(5) Pharmacy 26.....	p. 27

Electives.

Electives must count at least 11 points.

(7½)†Biology 8.....	p. 32	(11) Biology 4.....	p. 32
(11) Biology 18.....	p. 32	(11) Biology 19.....	p. 32
(11) Biology 61.....	p. 34	(11) Biology 62.....	p. 34
(11) Chemistry 11.....	p. 31	(11) Chemistry 12.....	p. 31
(7½) Education 1.....	p. 28	(7½) Economics 3.....	p. 35
(7½) Education 3.....	p. 28	(7½) Education 2.....	p. 28
(7½) French 1.....	p. 35	(7½) Education 4.....	p. 28
(7½) French 3.....	p. 35	(7½) French 2.....	p. 35
(7½) German 3.....	p. 36	(7½) French 4.....	p. 35
(7½) German 13.....	p. 36	(7½) German 4.....	p. 36
(11) Pharm. Chemistry 16.....	p. 30	(11) Pharm. Chemistry 16.....	p. 30

*Required of those not offering Physics as a science for entrance.

†Required of those not electing Biology 18.

DESCRIPTION OF COURSES

For convenience or reference, descriptions of the subjects are arranged as follows:

Pharmacy	p. 25
Materia Medica.....	p. 27
Education	p. 28
Pharmaceutical Chemistry.....	p. 29
Chemistry	p. 30
Biology	p. 32
Physics	p. 34
Economics	p. 35
English	p. 35
History	p. 35
French	p. 35
German	p. 36
Mathematics	p. 37
Military Drill.....	p. 37

Students in the two-year-plan of study are styled "First Year" and "Second Year" students; in the four-year plan of study they are styled "Freshmen, Sophomores, Juniors and Seniors."

PHARMACY.

11. **General Pharmacy.**—First semester.

12. **General Pharmacy.**—Continuation of 11.—Second semester.

Two lecture and six laboratory hours per week.

(a) A study of pharmaceutical preparations and the various processes involved in their manufacture. The lectures are accompanied by laboratory exercises planned to present a systematic course in pharmaceutical technique.

(b) Instruction dealing with the calculations incident to practical pharmacy and dispensing.

(c) A study of pharmaceutical nomenclature including such portions of Latin grammar as are applicable to the Latin names of medicines.

Professors Jordan and Dewey.



A Class in Pharmacy.

17. **Pharmacy and Prescription Practice.**—First semester.

18. **Pharmacy and Prescription Practice.**—Continuation of 17.—Second semester.

Two lectures and three laboratory hours per week.

(a) Prescription reading and a comprehensive study of pharmaceutical and chemical incompatibilities, together with the means of preventing or mitigating them. An extensive collection of lantern slides of fac-simile prescriptions and a large number of prescriptions from the files of drug stores of different cities in Indiana are available.

(b) This includes general extemporaneous pharmacy and the many and varied operations of the dispensing counter. Unofficial pharmaceuticals and toilet preparations receive consideration. Due attention is given to the statutes of the State of Indiana governing the labeling and filing of prescriptions.

In the laboratory the student receives training in extemporaneous pharmacy and prescription compounding. The acquisition of manipulative skill and laboratory technique is an important feature.

Professor Dewey.

19. **Pharmaceutical Jurisprudence.**—First semester.

One lecture hour per week.

The lectures deal in a practical way with pharmacy legislation, and with the special legal responsibilities of the pharmacist. The subjects of banking, collections, partnership and corporations, leases, fire insurance policies and, in general, subjects bearing on the business aspect of pharmacy, receive attention.

Professor Jordan or Assistant.

21. **Chemical Preparations.**—First semester.
 22. **Chemical Preparations.**—Continuation of 21.—Second semester.
 One lecture and three laboratory hours per week.
 The manufacture and study of typical preparations and chemicals of the U. S. Pharmacopoeia and the National Formulary with special reference to the Chemistry involved.
 Professor Dewey.
25. **Commercial Pharmacy.**—First semester.
 Two lecture hours per week.
 Lectures on the business aspects of pharmacy and store management.
 Professor Dewey.
26. **U. S. Pharmacopoeia and National Formulary.**—Second semester.
 Two lecture hours per week.
 A critical review of the U. S. Pharmacopoeia and National Formulary and a study of recent scientific contributions to pharmaceutical literature.
 Professor Dewey.

MATERIA MEDICA.

5. **Vegetable Materia Medica.**—First semester.
 6. **Vegetable Materia Medica.**—Continuation of 5.—Second semester.
 Two lecture and one laboratory hour per week.
 This line of study treats of the Latin and common names of medicinal plants, their habitats, morphology, methods of collection and preservation, active constituents, and adaptability for medicinal use. In the laboratory special attention is given to the identification of crude drugs by their physical characteristics, appearance, odor, and taste. Note book work on classification by morphology, by active constituents, by natural orders.
 Medicinal drugs of animal origin are studied toward the close of the second semester.
 Professor Gidley.



Pharmacognosy Laboratory.

7. **Inorganic Materia Medica.**—First semester.
 Two lecture and one laboratory hour per week.
 Lectures and recitations are held on the Latin and common names of medi-

cial inorganic chemicals, their source, physical and chemical characteristics, chemical formula, official preparations and purity standards.

Laboratory work consists in their identification by physical characteristics, appearance, odor, and taste, and in note book exercises on various classifications of these chemicals.

Professor Gidley.

8. Organic Materia Medica.—Second semester.

Two lecture and one laboratory hour per week.

Lectures and recitations on the official medicinal organic chemicals and drugs, including their Latin and common names, source, physical and chemical characteristics, chemical formula, preparations and purity standards.

Due attention is given to the new and unofficial remedies recognized by the American Medical Association.

Laboratory work follows the general plan outlined for laboratory work under Materia Medica 7.

Professor Gidley.

10. Microscopy of Drugs.—Second semester.

One lecture and six laboratory hours per week.

The lectures deal with the histological features of drugs and their common adulterants.

In the laboratory drugs are studied microscopically, and by the aid of microchemical tests, with particular attention to their diagnostic features. A number of unknown mixtures are presented for the identification of the drugs and their adulterants.

Professor Gidley.

EDUCATION.

The work of the Department of Education has been regularly approved by the State Board of Education, and Purdue University has been accredited for the preparation of teachers in accordance with the school laws of 1907.

1. General and Educational Psychology.—First semester.

2. General and Educational Psychology.—Continuation of 1.—Second semester.

Three recitation hours per week.

Includes demonstrations and experiments illustrative of the physiological basis of mental states.

This course is intended to give general psychological knowledge and insight into the general facts of human nature, and their relation to the work of teaching.

Professor Roberts.

3. History and Principles of Education.—First semester.

Three recitation hours per week.

This course has to do with the history of the development of educational problems and methods in their relation to social and political life. The final purpose of the course is to give an understanding of present educational ideas, practices, and tendencies.

Mr. Cromer.

4. Principles and Methods of Teaching.—Second semester.

Three recitation hours per week.

This course treats of the "how" in teaching, attempting to make more logical and more scientific the thought about teaching. The library work and reports aim to give familiarity with the periodical literature relating particularly to nature study, agriculture, household economics, and manual training.

Mr. Cromer.



A Class in Qualitative Analysis.

PHARMACEUTICAL CHEMISTRY.

8. Qualitative Analysis.—Second semester.

Three lecture and six laboratory hours per week.

A general study of qualitative analysis. The lectures deal with the theories of qualitative analysis and the practical methods of separation and identification of metals and acid radicals, including rules on solubility which form the basis of a scheme of separation for use in the analysis of unknown mixtures.

In the laboratory a number of unknown mixtures, both in liquid and solid form, are analyzed.

Professor Jordan.

9. Quantitative Analysis.—First semester.

Two lecture and six laboratory hours per week.

General quantitative analysis. The lectures deal with the theories and practical technique of analytical determinations.

In the laboratory, quantitative analyses of compounds are made by both gravimetric and volumetric methods.

Professor Jordan.

11. Organic Qualitative Analysis.—First semester.

One lecture and three laboratory hours per week.

This work includes the identification of medicinal organic compounds by means of qualitative tests. Attention is given to Pharmacopoeial purity-standards and to the official tests for impurities. The laboratory work also includes the separation and identification of important alkaloids, toxicology and practical urinary analysis.

Under toxicology the student is called upon to analyze poisoned animal tissue, separating and identifying the added poison.

Professor Jordan.

12. Drug Assay.—Second semester.

One lecture and three laboratory hours per week.

A quantitative estimation of the active constituents of drugs by pharmacopoeial methods, crude drugs, fluid, and solid extracts, tinctures, elixirs, syrups, tablets, pills, etc., are subjected to alkaloidal assay. Determinations are made also of the active constituents of certain volatile oils.

The lectures include a discussion of physiological methods of drug assay.

Professor Jordan.

13. **Food and Drug Analysis.**—First semester.

14. **Food and Drug Analysis.**—Continuation of 13.—Second semester.

One lecture and six laboratory hours per week.

A general study of the analysis of foods and drugs. The lectures deal with methods used by the U. S. Government and other standard methods of analysis.

In the laboratory milk, butter, fats, oils, meats, vinegar, canned goods, baking powders, extracts, etc., will be subjected to complete chemical analysis with special attention given to the detection of adulterants and impurities. Chemical

Analysis is supplemented by the use of microscope, polariscope, and refractometer whenever applicable. Professors Jordan and Gidley.

15. **Organic Chemistry.**—First semester.

Four lecture hours per week.

These lectures deal with the principal classes of organic compounds, their theoretical structure and class reactions. Special attention is given to those organic compounds that are of medicinal importance. Professor Gidley.

16. **Pharmaceutical Research.**—First or second semester.

Two lecture and six laboratory hours per week.

In this course the student is given an opportunity to do special work in Pharmaceutical Chemistry, Pharmacy, or Materia Medica. Difficult pharmaceutical problems will be attacked under the careful guidance of the professor in charge. The recommendation of the department is necessary for assignment to this course. Professors Jordan, Dewey, and Gidley.

CHEMISTRY.

1. **General Chemistry.**—First semester.

2. **General Chemistry.**—Continuation of 1.—Second semester.

Two lecture, one recitation and three laboratory hours per week.

A general survey of the science of Chemistry from the philosophical rather than the descriptive standpoint. The lectures are illustrated by experiments and deal mainly with the non-metallic elements and compounds and the fundamental theories of the science. The laboratory work follows the lectures closely and is largely quantitative in character.

Professor Ransom; Messrs. Hammond, Fishes, Miller, Nelson, Wray.

3. **Chemistry of the Metals and Qualitative Analysis.**—First semester.
4. **Chemistry of the Metals and Qualitative Analysis.**—Continuation of 3.—Second semester.

Two lecture and six laboratory hours per week.

A study of the more common metals and their compounds, based on the periodic law. The lectures are illustrated by experiments and deal with underlying principles of analysis, particularly the application of the theory of electrolytic dissociation and the law of chemical equilibrium. The laboratory work is the practice of qualitative analysis, including the identification of the common minerals

Professor Middleton and Messrs. Crane and Frisbie.

5. **Quantitative Analysis.**—First semester.
6. **Quantitative Analysis.**—Continuation of 5.—Second semester.

Two lecture and six laboratory hours per week.

A study of the theoretical principles and practice of quantitative analysis, both gravimetric and volumetric, including electrolytic methods.

For students in Agriculture specializing in Agronomy, Dairy Husbandry or Animal Husbandry, the analysis of soils, fertilizers, and fodders, or of dairy materials, will be included.

Professor Mahin and Mr. Harrison.

7. **Organic Chemistry (and Physiological Chemistry).**—First semester.
8. **Organic Chemistry (and Physiological Chemistry).**—Continuation of 7.—Second semester.

Two lectures and six laboratory hours per week.

The lectures during both semesters deal with the principal classes of organic compounds, aliphatic and aromatic, with emphasis upon class reactions and structural theory. The laboratory work during the first semester is the preparation of typical organic compounds, mainly aliphatic, their purification, and recognition. During the second semester the student may choose laboratory work in molecular weight determinations, and aromatic preparations; or an experimental course in the essentials of physiological chemistry.

Professor Evans and Mr. Foresman.

11. **Special Chemistry.**—First semester.
12. **Special Chemistry.**—Continuation of 11.—Second semester.

Two lecture and six laboratory hours per week, or its equivalent. This amount may be doubled.

Advanced work of a special character, particularly research.

The course is intended only for those who have shown special ability and industry, and assignment will be made only on the recommendation of the professor concerned and the head of the department.

Professors Evans, Conner, Ransom, Mahin, and Middleton.

BIOLOGY.**1. General Biology.—**First semester.**2. General Biology.—**Continuation of 1.—Second semester.

Two lecture and three laboratory hours per week.

These courses are designed to furnish a general knowledge of the fundamental facts underlying the biological sciences, such as can be obtained from a thorough study of a series of type forms. Much stress is laid upon the laboratory work, in which the individual work of each student is carefully inspected and checked.

Professor Enders; Messrs. Price and Tetrault.

4. Industrial Bacteriology.—First or second semester.

Two lecture and three laboratory hours per week.

The practical application of microbiology to the industries such as brewing, dairying, tanning and preservation of foods is studied in detail. The general phenomena of fermentation and enzymes will be considered in theory and in practice. Field trips to industrial plants will be taken. Professor Hilliard.

8. Preventive Medicine.—First or second semester.

One lecture and five library hours per week.

A general course of lectures in Sanitary Science and Hygiene, including the ancient and modern ideas of disease; the germ theory of disease; the theories of preventive medicine; vaccination and immunity; air, foods and water as carriers of disease; pollution and purification of water supplies; methods of sewage disposal and purification; garbage disposal; epidemics; isolation and quarantine; disinfection and fumigation; hygiene of the home; school sanitation and vital statistics.

Library work on assigned subjects requiring written reports each week.

Professor Hilliard.

18. Bacteriology.—First semester.

Two lecture and six laboratory hours per week.

A course in General Bacteriology introducing the student to the general biology of micro-organisms. Modern culture methods for the study of bacteria will be used, bearing upon the elements of the bacteriology of water, milk, air, ice, etc.

Professor Hilliard.

19. Bacteriology.—Second semester.

Two lecture and six laboratory hours per week.

An extension of 18, dealing more particularly with the application of bacteriology to modern sanitary problems, to the industries, and to medicine. Practice in laboratory methods of diagnosing infectious diseases, standardization of disinfectants, sanitary analysis of water, milk, shell fish and other applied laboratory technique will be given. Reports on current periodical literature bearing in the subjects studied will be required.

Professor Hilliard.



Pharmaceutical Research Laboratory.

39a. Human Physiology.—First semester.

39b. Human Physiology.—Continuation of 39a.—Second semester.

Three recitation hours per week.

The course consists of lectures and demonstrations, accompanied by frequent recitations. Although it is designed primarily to give the student a clear understanding of the activities of the human body, special stress is laid on those physiological facts which have direct bearing upon the laws of health.

An essay upon an assigned topic is required during the second semester.

Professor Terry.

44. Physiology and Hygiene.—First semester.

45. Physiology and Hygiene.—Continuation of 44.—Second semester.

Two lecture or recitation hours per week.

Lectures, demonstrations and text-book work upon the fundamental principles of the Anatomy, Physiology and Hygiene of the human body.

Professor Terry.

48. Pharmacology.—Second semester.

Four lecture hours per week.

Lectures and demonstrations, designed to give a complete instruction in the physiological actions and uses of drugs, with particular reference to the more poisonous groups. The list of the U. S. P. preparations will be given, together with the dosage of each.

Professor Terry.

61. Advanced Bacteriology.—First semester.

Two lecture and six laboratory hours per week.

This course is designed to cover some of the more purely scientific and theoretical problems of bacteriology. The first weeks of laboratory work will cover the more difficult points of laboratory technique; in the latter half of the semester the student will be encouraged to follow his own choice of work with as much freedom as possible. Lectures and discussions on such subjects as theories of immunity, classification, disinfection, vital statistics, and other questions of current interest in bacteriology will be held twice a week.

Professor Hilliard.

62. Health Problems.—Second semester.

Three lecture or conference hours. Four library hours per week.

An extension of course 61. Conferences and lectures on the theory and practice of personal and public Hygiene will be held three times a week. Oral and written reports on outside work will be required. Such topics as Quarantine, Ship Sanitation, the Biology of certain Infectious Diseases as typhoid, tuberculosis, Industrial Sanitation, etc., will be discussed.

Courses 61 and 62 are designed especially for those who intend to do teaching or research or to engage in Public Health Work. Professor Hilliard.



Balance Room.

PHYSICS.**1a. Elementary Physics.—First semester.****2a. Elementary Physics.—Continuation of 1a.—Second semester.**

Three lecture or recitation hours per week.

This is a descriptive line of study designed to give the student a familiarity with the principal facts and laws of Physics, together with the basis and significance of the more important theories of the subject.

Professor Ferry.

ECONOMICS.

2. **Economics.**—First or second semester.

Three recitation hours per week.

The course embraces a discussion of the fundamental principles of Economics.
Professor Davis and Mr. Davison.

3. **Sociology.**—First or second semester.

Three recitation hours per week.

Special attention is given to Charities and Correction, and other applications of the principles of Sociology.
Professor Davis and Mr. Davison.

ENGLISH.

3. **English.**—First semester.4. **English.**—Continuation of 3.—Second semester.

Three recitation hours per week.

The work includes the study of Composition, Rhetoric, and General Literature. At least one theme is required each week on assigned subjects.

Professors McRae and Shoemaker; Mr. Welday.

5. **Literature.**—First semester.6. **Literature.**—Second semester.

Three lecture or recitation hours per week.

The work includes a study of English prose; the novel—English poetry—Milton, Pope, Burns, Tennyson.

Professors McRae and Shoemaker.

FRENCH.

1. **Elementary French.**—First semester.2. **Elementary French.**—Continuation of 1.—Second semester.

Three recitation hours per week.

This course covers a study of grammatical construction and the reading at sight of simple prose.

Professor Davies.

3. **Intermediate French.**—First semester.4. **Intermediate French.**—Continuation of 3.—Second semester.

Three recitation hours per week.

This course involves sight reading of scientific works and a study of nineteenth century fiction.

Professor Davies.

HISTORY.

1. **History of Civilization.**—First or second semester.

Three recitation hours per week.

In this course some of the more important epochs in the history of civilization are considered. An attempt is made to trace the general trend of civilization from its Oriental beginnings to modern times. Little attention is given to the military phase, but special emphasis is put upon the industrial, scientific, literary, religious, and political aspects of the histories of the various nations considered. Text-books are made the basis of the course, but these are supplemented by lectures, reports and assigned readings.

Professor Moran, Dr. Bond and Mr. Davison.

GERMAN.

3. **Advanced Scientific and Literary German.**—First semester.
4. **Advanced Scientific and Literary German.**—Continuation of 3.—Second semester.

Three recitation hours per week.

Grammar is reviewed by means of composition and conversation. Scientific and literary prose is read and talks in German are given on subjects pertaining to German life. The acquirement of an ability to understand spoken German and the attainment of a mature and practical vocabulary are insisted upon.

Professor Babson.

7. **Beginning German.**—First semester.
8. **Beginning German.**—Continuation of 7.—Second semester.

Three recitation hours per week.

Facility and accuracy of translation are sought by means of careful grammatical drill, and reading of modern prose. Composition forms an important element in the instruction.

Messrs. Elias, Gunn, Greenfield, Greiner, and Sauerhering.

- 7a. **Beginning German.**—First semester.
- 8a. **Beginning German.**—Continuation of 7a.—Second semester.

Three recitation hours per week.

Comprehensive and rapid review of German grammar; reading of scientific and literary prose; practice in composition and speaking; the acquirement of a practical vocabulary.

Professor Heiss; Messrs. Elias, Gunn, Greenfield, Greiner, and Sauerhering.

13. **Advanced Scientific German.**—First semester.

Three recitation hours per week.

Prose selections on chemical subjects are read, grammar is reviewed and conversation is practiced.

Professor Heiss.

15. **Advanced German.**—First semester.
16. **Advanced German.**—Continuation of 15.—Second semester.

Three recitation hours per week.

Technical prose is read, especially that pertaining to Chemistry; stress is laid upon the acquirement of a practical vocabulary. Oft-recurring expressions are constantly emphasized. As opportunity is offered, conversation is practiced.

Mr. Greenfield.

15a. **Advanced German.**—First semester.

16a. **Advanced German.**—Continuation of 15a.—Second semester.

Three recitation hours per week.

Technical prose is read, both in kind and in amount of a more advanced nature than that required in Courses 15 and 16. Especial attention is given to the acquirement of a practical scientific vocabulary. Conversation is practiced.

Professor Helss.

MATHEMATICS.

11. **Trigonometry.**—First semester.

Three recitation hours per week.

Professors Alford, Bates, Marshall, and Westlund; Miss Mitchell; Messrs. James, Light and Stone.

12. **College Algebra.**—Second semester.

Three recitation hours per week.

Professors Alford, Bates, Marshall, and Westlund; Miss Mitchell; Messrs. James, Light and Stone.

13. **Analytical Geometry.**—First semester.

14. **Calculus.**—Continuation of 13.—Second semester.

Three recitation hours per week.

Professors Kenyon, Westlund and Marshall.

MILITARY DRILL.

It is compulsory for all non-alien male students of the Freshman and Sophomore classes, unless excused. Excuses are granted only in exceptional cases; minor physical disabilities which might be a bar for enlistment in the organized militia are not considered; ability to perform the work required in the Cadet Corps is the only determining factor. Aside from the advantages of military knowledge, the benefit of healthful exercises, strict discipline, and the tendency to correct physical defects should overbalance any prejudice against military training as given at this University. Under no conditions can the Purdue Cadet Corps be called out for active service. It is an independent organization for instructional purposes only.

1. **Military Drill.**—First semester.

2. **Military Drill.**—Continuation of 1.—Second semester.

3. **Military Drill.**—First semester.

4. **Military Drill.**—Continuation of 3.—Second semester.

Three drill hours per week.

The work in these courses is all drill, except that during the winter months a part of each drill hour is devoted to such theoretical instructions as is practicable and to gallery rifle range practice.

It covers the school of the soldier, squad, company, battalion and regiment, ceremonies, guard duty, and field service. The gallery work consists of the aiming and pointing drills, and the actual firing on the gallery range.



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Fowler Hall.